

USING SOCIAL COMPUTING TOOLS TO CONNECT REGIONAL AND REMOTE TEACHERS AND STUDENTS IN WESTERN AUSTRALIA

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ABSTRACT

This paper describes the research undertaken in Western Australia that was part of the nationally funded Centre for Science, ICT, Mathematics education for Rural and Regional (SiMERR) research project investigating 'Social Computing Enhancing Learning in Remote Australia'. Social Computing driven by Web 2.0 technology, enable rich social experiences of groups via the Internet. An overview of two case studies using Social Computing is presented; describing how the project was established and run during 2007. Data collected and analysed demonstrate the outcomes that such projects have on student and teachers in regional and remote Western Australia. The findings indicate the potential for social computing to be an extremely powerful educational tool for learners and their teachers. Issues and challenges are also discussed as we attempt to connect geographically dispersed groups via technology in regional and remote areas.

Keywords: *Social Computing, Blogging, ICT, literacy, Web2.0*

1. INTRODUCTION

In 2008 the New Media Consortium published the Horizon Report stating that emerging technologies are likely to have an effect on learning, teaching and creative expression given the social aspect of the web, where the next generation of social networking will base the organization of the network around people, rather than around content (NMC, 2008, p. 6). Social Computing tools have proliferated over the last few years as Web 2.0 technologies allow more collaborative publishing via the Internet. Blogs and Wikis are easy to use tools which can offer teachers and students the opportunity to create shared understandings through self-publishing, fostering feedback, critical commentary and scope for group and peer editing and creation (Smith, Biemmi Beurteaux & Trinidad, 2008; Trinidad & Turner, 2008). Penrod (2007) states in her book *Using Blogs to Enhance Literacy: The Next Powerful Step in 21st-Century Learning* that the Internet has brought a whole new dimension to writing and writing pedagogy through the new media and meaningful, socially connected learning (Richardson, 2006). Today's students, better known as digital natives (Pensky, 2001), are born into a digital world of powerful social networking tools (eg. MySpace, Facebook) which allow groups to work together virtually while socially connected.

A collaboration between the SiMERR National Centre and the SiMERR-ICT state and territory hubs took place during 2006 and 2007 enabling the investigation and trialing of *Social Computing* tools. The research group undertook the project to raise the awareness of the possibilities for, and impact of social computing on student learning. This national research project investigated the use of possible *Social Computing* tools then tested the supporting of professional learning opportunity for teachers in each state and territory to

implement action learning in their own school, participate in a community of practice via video conferencing and the use of Web2.0 applications. A collection of case studies of the use of social computing to support student learning was produced and the use of social computing for student learning and teacher professional learning was evaluated.

Western Australia is the largest state in Australia with over 2.5 million square kilometers and thus telecommunication networks have the ability to improve learning opportunities for students and staff with access from anywhere, anytime, and ultimately reduce the feeling of professional and social dislocation experienced in many isolated communities (Frid, Sparrow, Trinidad, Treagust, & McCrory, 2007). The full potential of videoconferencing and Voice over Internet Protocol (VoIP) has yet to be fully explored by many schools but a network of 100 Telecentres in regional and remote Western Australian, with 60 Telecentres providing dedicated *Polycom* videoconferencing equipment is operating currently. The issue of providing reliable, low-cost connectivity remains but connectivity is improving through two government initiatives. One initiative is the state-wide broadband networking strategy where the State Government has committed “to provide reliable, high-speed and affordable broadband access, no matter where they live” (Carpenter, 2006) by installing a network in Western Australia similar to the Canadian Province of Alberta’s SuperNet. The other initiative was announced in August 2007 by the Federal Government funding broadband infrastructure in 88 Catholic and Independent schools in rural, regional and remote WA (Coonan, 2007). In partnership with the Australian Independent Schools of WA and the WA Department of Industry and Resources and managed by the Catholic Education Office of WA, *The Bush Schools Network* project will allow schools, whose students are predominantly Indigenous, to receive new or upgraded satellite services to remote areas not served by landlines. This project once complete will allow students to participate at an affordable cost in the online learning services offered to help further close the digital divide currently experienced in a geographically vast state (Reading et. al, 2008; Trinidad, 2007).

2. THE CASE STUDIES

In Western Australia two case studies were completed as a part of the national project. One of the case studies was undertaken with an Adult Education Centre in the remote Kimberley area of Western Australia and the other case study was undertaken with a Catholic primary school in south Western Australia (see Figure 1).

Case Study One

This case study involved a group of adult Aboriginal learners (n=6) and their teachers (n=2) in a remote Western Australian town who were able to learn about, and develop Blog sites as part of their literacy and employment skills development. In the initial stages of the project - as students were first introduced to the concept of Blogging, they needed to develop the IT skills required to create an ongoing Blog site, and began to explore a much larger world that was opened to them by the use of the Internet and social computing.



Figure 1: Location of the Two Case Studies

The aims of the project encompassed students' academic, work, and social development, and included:

- Facilitating increased student engagement with learning;
- Enhancing students' understanding of the internet and how to use it as a tool for communication;
- Developing students' technical skills, including using digital cameras, downloading and scanning pictures, understanding and using hardware and software, finding their way through and around a website, following technical instructions, and learning new IT vocabulary; and
- Encouraging development of students' personal skills, such as teamwork, collaboration, helping others, communication skills (questioning, giving opinions and directions) and an increase in self-value as individuals contributing to the successes of a team.

The creation of an organisational Blog allowed the participants to communicate amongst themselves and with other stakeholders, allowing them to be involved in a social computing practice that could increase and assist them with their literacy skills. The project aimed to also encourage participants to communicate via their Blogs with others outside their everyday environment. For a full description of this case study see Smith, Biemmi Beurteaux & Trinidad (2008).

Case Study Two

Year 6 students ($n=14$), the classroom teacher and the support ICT teacher participated in this case study. The social computing (Blogging) activity was set-up within the MyInternet system. This provided the students with an audience in a safe online environment only accessible to the Catholic Education community providing a wider audience easy access where comments could be made to the students. The students were asked to read a novel

and then discuss what they needed to share about the novel for a book review. Pertinent questions were asked of the students such as “What elements does a book review contain?” This activity was carried out using an inquiry learning process and used a student-developed rubric for evaluation purposes. Specific learning outcomes for this activity were linked to the Curriculum Framework Progress Maps:

- English - R4.1 Interprets and discusses ideas, information and events in texts containing unfamiliar concepts and topics.
- Writing - W4.2 Adjusts writing to take account of aspects of context, purpose and audience.
- Society and Environment - ICP4.4 Develops an informed opinion and communicates this with a particular purpose or audience in mind.
- Technology and Enterprise - I2.2 Uses techniques to access, record, store, manipulate and transmit information and create informational products.

The MyInternet Blog was used to provide an electronic book review to the wider audience. Information was sent home to parents and permission was given for others to comment on the Blog. The audience was the student’s peers and the teacher for the initial written book review, then this information was transferred to the MyInternet Blog. The student’s Blogs were then viewed and commented on by peers, parents, staff, and the school community via the CathEdnet network. The students compared writing a book review for a class review and writing for a Blog which had a much wider audience. For a full description of this case study see Trinidad & Turner (2008).

3. METHODOLOGY

Qualitative data were gathered from both the students and teachers involved in the two case studies. Interviews were conducted with the teachers and students to answer the research questions.

Three research questions informed the study:

1. What benefits do teachers and students say social computing (Blogging) brings to student learning?
2. What supports the use of social computing (Blogging) for student learning?
3. What are the challenges with the use of social computing for student learning?

Interviews were conducted with teachers (n=3) and students (n=20) after the Blogging experience. Observations of the class took place during the study and pieces of finished written work and the Blogs were compared. Table 1 documents the seven events undertaken in the Social Computing Project with the teachers and the critical friends.

The cycle of activities for the project were designed so that the teacher professional learning included action learning in their own classroom, support via technology and production of case studies to be presented at a national conference.

Table 1: Seven Events undertaken for the Social Computing Project

<p><i>Event 1 – Initial Professional Sharing</i> – a videoconference to connect all teachers and critical friends, with the purpose of sharing by critical friends of the possibilities of using the new tools and sharing by the teachers about how they perceived use in their own context.</p> <p>Two videoconferences were organised but each teacher and critical friend was expected to participate in one of these. For <i>each</i> videoconference one teacher attended from each state/territory and four critical friends attended and presented about one social computing tool each. Each videoconference was facilitated by the project manager.</p> <p><i>Event 2 – Collaborative Planning</i> – a videoconference to connect all teachers and critical friends – sharing of strategic decisions about school students learning experience plan with feedback from all participants.</p> <p>For <i>each</i> videoconference two states (four teachers and two critical friends) combined to support each other in the critical planning state of finalising the strategic details of each school's initiative. Each videoconference was facilitated by two critical friends participating following a pre-determined program.</p> <p><i>Event 3 –Critical Friend First Visit to School</i> – a full day to assist teacher to finalise plan including a method of evaluating the experience.</p> <p><i>Event 4 – Ongoing Online Support</i> – and online environment created to allow teachers to communicate significant information to teachers, to ask for advice during the implementation process (through individual Blog), and contribute to evaluation (through Wikis) of some events.</p> <p><i>Event 5 –Critical Friend Second Visit to School</i> – a full day to assist teacher to finalise case study and to interview teacher and students</p> <p><i>Event 6 – Final Professional Sharing</i> – a videoconference to connect all teachers and critical friends to allow teachers to “share” their case studies and open their classrooms to a wider audience. For <i>each</i> videoconference one teacher attended from each state and four critical friends will attend. Each videoconference was facilitated by the project manager.</p> <p><i>Event 7 – ACEC2008 Conference</i> – all teachers and critical friends attended the conference and presented their papers on their case studies.</p>

4. FINDINGS AND DISCUSSION

The results from the survey and interview data are discussed with the outcomes summarised for the two case studies. The overall outcomes included:

- A greater understanding of the potential of the Internet and how to use it as a social tool for communication;
- Technical skills: using digital cameras, downloading and scanning pictures, understanding and using hardware and software, finding their way through and around a website, following technical instructions, and learning new IT vocabulary (paste, download, search...etc...);
- Personal skills: the project enhanced the personal skills staff members at Guwardi such as: team work, collaboration, helping others;
- Communication skills (questioning, giving opinions and directions)... and an increase in self-value as individuals contribute to the successes of a team; and
- Stakeholder benefit: each organisation benefited from the development of a Blog site that promotes their role in the community and the work undertaken.

What benefits do teachers and students say social computing (Blogging) brings to student learning?

The main benefits were engagement with learning and impact on literacy learning. The Blogging projects clearly engaged the learners with using computers and learning new skills. At both case study sites the teachers found the students to be more interested in what they were doing and more motivated to complete tasks. Positive comments by one Case Study One teacher indicated the student's motivation:

It's been really good. They're always asking when we're coming down here ... they love it. They can't wait to come down. (T2, G).

While the other adult literacy teacher in Case Study One commented on the potential for social computing to have a positive impact on these students' literacy skills.

And they're learning, as we're going along. (One of the students) was doing a 'can't', so he knew he needed an apostrophe but he didn't know where it was or what it was so that's part of the learning, that this is an apostrophe and 'can't' is short for 'cannot', so he's learning things as he goes along but it's in a more meaningful kind of way (T1, G).

The teacher at Case Study Two site described the experience for the students to be the “next step to lift student's interest in writing” and was so pleased with the results that she wanted to progress to “develop book reviews into a podcast” and broadcast this to the wider community. She clearly saw the benefits of social computing to promote learning and enhance student writing through the opportunities of social interaction and communication.

The students who were interviewed for this project felt that using Blogging and emails helped them with their literacy skills. The students were very honest about their abilities and the need to write well because someone was looking at their work.

From an aboriginal adult learner's perspective:

Well, ... we don't know how to spell or read or write. We just come here and start using this stuff just to get back on tracks, with spelling and stuff (S1, G).

From a primary school student perspective:

Well it helps you with your spelling because if you make any mistakes everybody is going to see them and it helps you pick what sorts of books you like and it helps you see what other books different people like (S6, L).

The students' responses were focused on the benefits of being able to read each other's work and “learn about books”. Being able to compare their own efforts in writing with each other was the most common learning reported by students.

This was seen as the major advantage of having a wider audience to communicate with which meant that students needed to be more aware of what they were writing, checking spelling and grammar. This in turn helped students think about their own writing as they were comparing their own work to other student's quality of work as evidenced by the student's comments.

What supports the use of social computing (Blogging) for student learning?

Improvements of the student's ability to write to take account of the aspects of context, purpose and audience were noted by the teachers and evidenced in the work produced by the students. Teachers from both case studies also noted how the students were very conscious of the need to present work of a high standard and repeatedly asked for advice and assistance from the teacher and classmates. Such a process supported the student learning.

Students from both case study sites enjoyed the experience of Blogging and teachers could clearly see the benefits for students publishing to a wider audience especially those outside their classroom. With the Adult Education students they found it was 'cool' to have other people read their Blogs:

Yeah, just doing our own Blogging websites, and just putting the stuff in there, and people from uni such as Curtin University doing comments about our photos on our blogging sites. That was really cool I think (S1, G).

With the primary school students the teacher had attempted to keep the students safe by using the MyInternet Blog system which was accessible by the principal, other teachers, parents and peers. The students had enjoyed the Blogging experience but they wanted more of the outside world to see what they were doing, so feedback from the teacher and the students was that the school should use a more widely accessed Internet Blogging site like Blogger.com next time to experience the full benefits of social computing, that is, reaching an audience outside the school community network. The teacher clearly articulated this:

As this was the first time I was doing Blogging, I was aware of the need to keep the students safe, but the students were asking for a wider audience and opportunity to present their work to more people... we need to move out of MyInternet – not wider enough audience – students need a wider audience (T1, L).

What are the challenges with the use of social computing for student learning?

Some challenges were experienced both by the students and the teachers. Technical issues were encountered and this is summed up in this comment by a primary school student:

Bad Internet connections not being able to post your Blog and people not replying to your Blog...spelling and grammar errors! (S5, L).

During this project the teachers involved were encouraged to share their journey through an online community of practice and were provided support from a critical friend via a videoconferencing linkup. This enabled the teacher to link with nine other teachers from around Australia and talk about, and reflect on, their experiences in an action learning cycle. Two major issues cost of the broadband and connectivity were experienced by Western Australian teachers participating in this project. Broadband is expensive for videoconferencing as it consumes the download allowance especially for a remote Independent school connected via a satellite connection. This caused one teacher to withdraw from the project early in the first year due to the predicted videoconference cost. Connectivity between the different videoconferencing systems prevented another teacher

from connecting to the SiMERR videoconference bridge from the Catholic school *Centra videoconferencing system* due to firewall and connection issues. Teachers from two schools used the Telecentres to successfully access the SiMERR videoconference bridge via the dedicated *Polycom* videoconferencing system. An hourly cost was incurred if the Telecentre connected to the SiMERR videoconference bridge. The teacher who was unable to connect through the *Centra* videoconferencing system then successfully connected via the Telecentre but had to travel 30 minutes to the neighbouring community to use their Telecentre. This project illustrated that connecting between different systems was difficult unless using a Telecentre and costly connectivity issues remain as a major barrier for teachers to easily videoconference in Western Australia (Reading et. al., 2008).

5. CONCLUSION

The research undertaken at the two Western Australian case study sites has achieved as understanding of issues impacting on young primary school students and Indigenous literacy learners using *Social Computing* tools. Through the case studies an understanding of the difficulties as well as the highlights of connecting across geographically remote areas was gained.

The use of *Social Computing* (Blogging) has provided a means for the learners to write for a purpose and audience, and in doing so contributed to an improved understanding of their needs. In 2008 work has continued with the Adult Education Centre connecting further Adult Education centres to participate in Blogging thus continuing to bring the outside world into their community. This is summed up by the comment:

They're enjoying the challenge, they're enjoying the technology. And the dignity ... you know, you are using modern technology and that's, like, about confidence-building, self-esteem (T1, G).

Overall this has been a transformative project connecting teachers with supportive colleagues from across Australia to participate in a *Social Computing* action learning process which has had positive outcomes for each case study site and the students involved. The teachers and students have been able to develop their skills in using Blogging and be further inspired for the potential uses of *Social Computing* tools in their centres to have their students involved in meaningful, socially connected learning.

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REFERENCES

- Carpenter, A. (2006). Statewide Broadband Network Strategy. Government of Western Australia. *Media Statement*, 29/11/06. Retrieved 30 September 2008 from http://www.doir.wa.gov.au/documents/BI_BroadbandNetworkStrategy.pdf
- Coonan, H. (2007). Clever Networks: helping the Bush Schools Network in rural, regional and remote WA. *Media Release*. Retrieved 30 September 2008 from http://www.minister.dcita.gov.au/coonan/media/media_releases/clever_networks_helping_the_bush_schools_network_in_rural_regional_and_remote_wa
- Frid, S., Sparrow, L., Trinidad, S., Treagust, D. & McCrory, K. (2007). The Western Australian Experience. In T. Lyons, (ed), *A National Survey of Science, ICT and*

Mathematics Education in Rural and Regional Australia: State and Territory Case Studies. DEST: Canberra.

New Media Consortium. (2008). *The Horizon Report 2008*. Retrieved 30 September 2008 from <http://www.nmc.org/pdf/2008-Horizon-Report.pdf>.

Reading, C., Fluck, A., Trinidad, S., Anderson, N., & White, B., (2008). Connecting Teachers in Remote Australia: Challenges in Realising the Potential of Videoconferencing. Proceedings of the Australian Computers in Education Conference 2008 ACT on ICT. (pp. 426-433). Australian Council for Computers in Education: Belconnen, ACT

Richardson, W. (2006). *Blogs, Wikis, Podcasts, and Other Powerful Web Tools for Classrooms*. Corwin Press: Thousand Oaks.

Penrod, D. (2007). *Using Blogs to Enhance Literacy: The Next Powerful Step in 21st-Century Learning*. Rowman & Littlefield: Lanham.

Prensky, M. (2001). Digital Natives, Digital Immigrants, *On the Horizon*, 9(5), 1-6.

Smith, M., Biemmi Beurteaux, E., & Trinidad, S., (2008). Blogging in the Bush: Using social computing to enhance adult literacy in remote Western Australia. Australian Computers in Education Conference 2008 ACT on ICT. (pp. 426-433). Proceedings of the Australian Council for Computers in Education: Belconnen, ACT.

Trinidad, S. (2007). Closing the digital divide: Education Telecommunications systems in Western Australia, *Australian Educational Computing*, 22(2), 32-36.

Trinidad, S. & Turner, D. (2008). Using social computing to enhance children's literacy in regional Western Australia. Proceedings of the Australian Computers in Education Conference 2008 ACT on ICT. (pp. 581-583). Australian Council for Computers in Education: Belconnen, ACT.